

## Storm Data and Unusual Weather Phenomena - July 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>IOWA, Southwest</b>				
<b>MONONA COUNTY --- TURIN [42.02, -95.97], 0.4 E TICONIC [42.17, -95.94], 1.9 NW GRANT CENTER [42.19, -96.03], 3.0 E ONAWA MUNI ARPT [42.02, -96.04], 2.8 SE BLENCOE [41.90, -96.05], 5.4 SW MOORHEAD [41.87, -95.94]</b>				
	07/01/10 00:00 CST		2K	Flood (due to Heavy Rain)
	07/02/10 15:45 CST		0	Source: Official NWS Observations
This flooding carried over from June when heavy rain during the morning of June 27th caused flooding of the Little Sioux River. The river near Turin crested at around 24.5 feet during the early morning hours of June 30. Flood stage is 20 feet. The river was above flood stage near Turin from the early evening of June 27th through July 2nd. A levee along the river protected significant flooding although some agricultural lowlands were flooded.				
<b>Heavy and persistent rain in June caused flooding of some rivers in western Iowa which carried over into July.</b>				
<b>FREMONT COUNTY --- 2.0 WNW BARTLETT [40.89, -95.82], 3.4 NW PERCIVAL [40.78, -95.85], 5.5 WSW PERCIVAL [40.72, -95.90], 2.6 SW PAYNE [40.65, -95.79], 5.4 SSW PAYNE [40.60, -95.78], 3.1 WNW HAMBURG [40.61, -95.71]</b>				
	07/01/10 00:00 CST		5K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations
This flooding carried over from June when heavy rain over much of eastern Nebraska and western Iowa during most of that month caused a prolonged period of flooding along the Missouri River, especially downstream of Omaha through Rulo. The river near Nebraska City climbed above flood stage early in the afternoon on June 11th and remained above flood stage for most of July and into August. River levels were held up by additional rains and increased releases from upstream reservoirs. The river at Nebraska City crested around or a little over 25 feet during the afternoon of June 16th and June 21st. During July the river at Nebraska City peaked around 22 feet during the evening of July 1. Flood stage is 18 feet. In western Iowa most of the flooding was confined to farmland along the river.				
<b>MILLS COUNTY --- 4.5 WNW FOLSOM [41.13, -95.89], 3.3 WSW PACIFIC CITY [41.03, -95.88], 4.5 SSW PACIFIC JCT [40.96, -95.84], 8.3 W TABOR [40.90, -95.83], 6.5 W TABOR [40.89, -95.79], 3.3 NNW FOLSOM [41.14, -95.85]</b>				
	07/01/10 00:00 CST		10K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations
This flooding carried over from June when heavy rain over much of eastern Nebraska and western Iowa during most of the month caused a prolonged period of flooding along the Missouri River downstream of Omaha through Rulo. The flood damage was increased near the confluence of the Platte River where flood waters from the Platte added to the flow. In Plattsmouth the Missouri River crested a little over 33 feet in the late afternoon of June 22nd, flood stage is 26 feet. During July the river crested close to 29.5 feet in the afternoon of July 1. The river climbed above flood stage in the afternoon of June 11 and remained close to or above flood stage most of July into August. Several mobile home and camping communities along the river were flooded, including some trailers and mobile homes. Roads near the river were also flooded.				
<b>POTTAWATTAMIE COUNTY --- 1.3 SSW GRABLE [41.45, -95.93], 5.2 WNW GRABLE [41.49, -96.02], 2.5 SW ASCOT [41.33, -95.94], 1.8 SW COUNCIL BLUFFS [41.26, -95.90], 0.9 SSE CARTER LAKE [41.29, -95.86]</b>				
	07/01/10 01:00 CST		10K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Newspaper
Lowland flooding from heavy rain over much of eastern Nebraska and western Iowa during most of June carried over through much of July into August along the Missouri River in the Omaha area. The high waters frequently flooded Wilson Island Park which remained closed from when it first flooded on June 18th through July and August. A few roads by the river also flooded. Rising water also periodically flooded a riverboat casino's parking lot and lower level of a parking garage.				
<b>Heavy and persistent rain in June caused prolonged flooding along the Missouri River which continued through July and into August downstream of Omaha. The flooding was prolonged by additional periods of heavy rain in July combined with increased releases from upstream reservoirs.</b>				
<b>FREMONT COUNTY --- HAMBURG [40.60, -95.65], 0.7 N HAMBURG REIDS ARPT [40.59, -95.65], 1.6 ENE HAMBURG REIDS ARPT [40.59, -95.62], 2.1 SW RIVERTON [40.66, -95.60], 3.7 WSW RIVERTON [40.66, -95.63]</b>				
	07/05/10 12:45 CST		0	Flood (due to Heavy Rain)
	07/06/10 07:00 CST		0	Source: Official NWS Observations
Rainfall of 2 to 3 inches fell across much of the Nishnabotna River basin for the 48 hour period ending at 7am on July 5. The heavy rain caused another round of flooding along the Nishnabotna River, especially near Hamburg. The river near Hamburg crested a little over 24 feet in the evening of July 5th. Flood stage is 23 feet. The river near town was above flood stage from the afternoon evening of the 5th until the morning of the 6th. A federal levee near town protected the area from significant damage, but minor flooding of agricultural lowlands near the river was noted.				
<b>A slow moving cold front brought a round of heavy-rain producing thunderstorms that tracked from eastern Nebraska into southwest Iowa. Rainfall of 2 to 3 inches was common from southeast Nebraska into southwest Iowa. The heavy rain caused new flooding and</b>				

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Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
prolonged ongoing flooding along the Missouri River.				
<b>POTTAWATTAMIE COUNTY --- 3.0 NW OAKLAND [41.35, -95.44]</b>				
	07/07/10 13:15 CST		0	Funnel Cloud
	07/07/10 13:15 CST		0	Source: Trained Spotter
Numerous spotters reported seeing funnel clouds, generally northwest of Oakland. Although there was some reports of one of them touching down, no damage was observed or reported and the showers that they formed on produced no lightning.				
Showers that developed on a weak boundary in east central Nebraska and western Iowa produced a few funnel reports.				
<b>(IA-Z043) MONONA, (IA-Z055) HARRISON, (IA-Z056) SHELBY, (IA-Z069) POTTAWATTAMIE, (IA-Z079) MILLS, (IA-Z080) MONTGOMERY, (IA-Z090) FREMONT, (IA-Z091) PAGE</b>				
	07/14/10 11:00 CST		0	Heat
	07/14/10 18:00 CST		0	
Temperatures climbed quickly into the lower to mid 90s early in the afternoon on July 14th as dew point temperatures rose to the upper 70s to lower 80s. This created heat index values of 105 to 115 degrees over most of the area from around noon CDT until 7pm CDT. A line of strong to severe thunderstorms developed on a cold front bringing relief to the heat by evening as they pushed through the region.				
<b>MONONA COUNTY --- ONAWA [42.03, -96.10]</b>				
	07/14/10 17:25 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 17:25 CST		0	Source: Newspaper
Thunderstorm wind gusts around 60 mph knocked a large tree down blocking a road in Onawa. The winds also blew down power lines trapping a traveler on a highway near town for a while until electrical crews could move the lines.				
<b>HARRISON COUNTY --- DUNLAP [41.85, -95.60]</b>				
	07/14/10 17:52 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 17:52 CST		0	Source: Trained Spotter
A spotter estimated thunderstorm wind gusts around 60 mph.				
<b>POTTAWATTAMIE COUNTY --- 0.7 WSW COUNCIL BLUFFS [41.27, -95.88], 2.1 NW DUMFRIES [41.20, -95.81]</b>				
	07/14/10 18:50 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 18:50 CST		0	Source: Trained Spotter
Thunderstorm wind gusts of around 60 mph downed large tree limbs from Council Bluffs to southeast of town. One limb caught a power line going into a house pulling the mast off exposing live wires which started an attic fire.				
<b>MILLS COUNTY --- PACIFIC JCT [41.02, -95.80]</b>				
	07/14/10 19:40 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 19:40 CST		0	Source: Trained Spotter
Thunderstorm winds estimated at close to 60 mph downed trees across a driveway.				
<b>PAGE COUNTY --- 0.7 S SHENANDOAH [40.76, -95.37]</b>				
	07/14/10 19:48 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 19:48 CST		0	Source: Trained Spotter
Thunderstorm wind gusts estimated at close to 60 mph blew down at least one tree in Shenandoah.				
Thunderstorms developed in a southwest to northeast line along a cold front that pushed across eastern Nebraska and western Iowa during the late afternoon and evening of July 14th. Ahead of the front temperatures climbed into the mid 90s with dew point temperatures in the mid 70s to lower 80s. This created a very unstable environment for the storms. As the line of storms encountered the extremely unstable conditions they increased in strength, and besides producing very heavy rain, wet micro-bursts developed with some of the storms.				
<b>(IA-Z043) MONONA, (IA-Z055) HARRISON, (IA-Z056) SHELBY, (IA-Z069) POTTAWATTAMIE, (IA-Z079) MILLS, (IA-Z080) MONTGOMERY, (IA-Z090) FREMONT, (IA-Z091) PAGE</b>				
	07/17/10 12:00 CST		0	Heat
	07/17/10 18:00 CST		0	

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Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
Sunshine and warm temperatures aloft helped temperatures climb into the lower to mid 90s and south winds helped dew point temperatures reach 75 to 80 degrees over most of the region. This allowed heat index values to climb into the 105 to 110 degree range over much of the area from around 1pm to 7pm CDT on July 17th.				
<b>HARRISON COUNTY --- 1.2 NW CALIFORNIA JCT [41.83, -96.00]</b>				
	07/18/10 01:05 CST		0	Thunderstorm Wind (EG 50 kt)
	07/18/10 01:05 CST		0	Source: COOP Observer
The cooperative observer near Little Sioux said thunderstorm wind gusts knocked down several tree limbs in the vicinity. The winds were estimated at 55 to 60 mph.				

<b>SHELBY COUNTY --- HARLAN [41.65, -95.33]</b>				
	07/18/10 02:50 CST		20K	Thunderstorm Wind (EG 50 kt)
	07/18/10 02:50 CST		0	Source: Newspaper
Thunderstorm winds estimated at 55 to 60 mph downed a large tree which crushed the roof of a house in the Harlan area. Time was estimated by radar.				

Isolated thunderstorms developed along a slow moving weak cold front that pushed into eastern Nebraska during the overnight hours of July 17th/18th. Ahead of the front conditions were moderately unstable with temperatures in the 80s and dew point temperatures in the mid to upper 70s. Two small clusters of thunderstorms crossed the area, one tracked from the Albion and Norfolk area into western Iowa north of Omaha. The other from Seward and Lincoln toward Nebraska City. The storms mainly produced gusty winds, but a few reports of large hail were also received.

<b>(IA-Z079) MILLS, (IA-Z080) MONTGOMERY, (IA-Z090) FREMONT, (IA-Z091) PAGE</b>				
	07/22/10 13:00 CST		0	Heat
	07/22/10 18:00 CST		0	

Temperatures climbed into the mid and upper 90s during the afternoon and early evening in far southwest Iowa on July 22nd. When combined with dew point temperatures that were close to 80 degrees, heat index values reached around 105 to 110 degrees from around 2pm until 7pm CDT.

### NEBRASKA, East

<b>CASS COUNTY --- 2.3 N PLATTSMOUTH [41.05, -95.90], 2.5 SE PLATTSMOUTH [40.99, -95.87], 3.9 E MURRAY [40.93, -95.85], 2.5 ESE UNION [40.81, -95.85], 4.6 E UNION [40.82, -95.81], 5.7 E MURRAY [40.93, -95.81], 3.5 ESE PLATTSMOUTH [41.00, -95.84], 3.0 NE PLATTSMOUTH [41.05, -95.86]</b>				
	07/01/10 00:00 CST		5K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations

This flooding carried over from June when heavy rain over much of eastern Nebraska and western Iowa during that month and also in July caused a prolonged period of flooding along the Missouri River, especially downstream of Omaha through Rulo. Although the river at Plattsmouth dropped below flood stage on July 8th, it remained high all of July climbing back above flood stage in the middle of the month and again several times late in the month into August. The flood damage was increased near the confluence of the Platte River early in the month where flood waters from the Platte added to the flow. In Plattsmouth the Missouri River crested a little over 33 feet in the late afternoon of June 22nd, flood stage is 26 feet. The July crest was about 29.5 feet on the first. Some roads on the east end of Plattsmouth were closed due to flood waters which also submerged the land around a waste-water treatment plant which prompted sandbagging. A recreation area in the region was also partially submerged in flood waters.

<b>DOUGLAS COUNTY --- 1.1 SW EAST OMAHA [41.36, -95.97], 0.9 NE EAST OMAHA [41.38, -95.94], 1.2 ESE EAST OMAHA [41.36, -95.93], 1.4 NE NORTH OMAHA [41.34, -95.95], 1.2 NNE NORTH OMAHA [41.35, -95.96]</b>				
	07/01/10 00:00 CST		25K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations

Persistent and heavy rains during June and July combined with increased releases from Gavin's Point Dam and caused the Missouri River to approach its 29 foot flood stage several times in July (although there was a period from the 7th through the 24th when the river dropped below 25 feet or so). The high water flooded some parks in the flood plain including N.P. Dodge park causing its closure. The high water continued into August and eventually prompted the closure of N.P. Dodge Park for the season and causing 20,000 dollars in lost revenue for the city of Omaha.

<b>NEMAHA COUNTY --- 3.5 NNW PERU [40.52, -95.77], 2.6 SE PERU [40.46, -95.69], 0.8 W BROWNVILLE [40.40, -95.66], 0.5 S NEMAHA [40.32, -95.67], 9.4 SE NEMAHA [40.23, -95.55], 9.8 ESE NEMAHA [40.26, -95.51], 4.7 ENE PERU [40.50, -95.65]</b>				
	07/01/10 00:00 CST		20K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations

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Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
Heavy rain over much of eastern Nebraska and western Iowa during most of June caused a prolonged period of flooding along the Missouri River, especially downstream of Omaha through Rulo. The river near Brownville climbed above flood stage during the afternoon on June 11th and remained above flood stage through July and into August aided by additional rain and increased releases from upstream reservoirs. The river at Brownville crested close to 43 feet during the evening of June 23rd, flood stage is 32 feet. During July the river crested a little under 39 feet for the first several days of the month. Besides considerable flooding of lowlands along the river, several roads were flooded including one that lead to the Cooper Nuclear power plant. Recreation areas also sustained flood damage.				

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<b>OTOE COUNTY --- 9.4 N NEBRASKA CITY ARPT [40.81, -95.87], 4.8 NNW NEBRASKA CITY ARPT [40.73, -95.91], 1.1 NE NEBRASKA CITY ARPT [40.68, -95.85], 3.9 ESE NEBRASKA CITY [40.63, -95.78], 5.4 ESE PAUL [40.55, -95.78], 5.9 ESE NEBRASKA CITY [40.61, -95.75]</b>				
	07/01/10 00:00 CST		20K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations

Heavy rain over much of eastern Nebraska and western Iowa during most of June caused a prolonged period of flooding along the Missouri River, especially downstream of Omaha through Rulo. The river near Nebraska City climbed above flood stage early in the afternoon on June 11th and remained above flood stage for most of July and into August. The flooding was aided by additional rains in July and increased releases from upstream reservoirs. The river at Nebraska City crested around or a little over 25 feet during the afternoon of June 16th and June 21st and started July out a little under 22 feet. Flood stage is 18 feet. Industrial roads near the river were flooded along with some cabins, boat ramps and recreation areas.

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<b>RICHARDSON COUNTY --- 3.4 N BARADA [40.27, -95.59], 5.4 SE BARADA [40.17, -95.50], 0.2 NW RULO [40.05, -95.43], 6.1 ESE RULO [40.00, -95.33], 7.8 ESE RULO [40.01, -95.29], 7.1 N RULO [40.15, -95.41], 5.1 NE BARADA [40.27, -95.51]</b>				
	07/01/10 00:00 CST		20K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations

Heavy rain over much of eastern Nebraska and western Iowa during most of June caused a prolonged period of flooding along the Missouri River, especially downstream of Omaha through Rulo. The river remained above flood stage through July and into August, with the high water aided by additional rains and increased releases from upstream reservoirs. The river at Rulo reached a record around 26.6 feet during the evening of 6/24, flood stage is 17 feet. A July crest of just under 23 feet late on the 5th was observed. Highway 159 near Rulo was closed for a time and substantial flooding of lowlands along the river occurred including cabins and recreation areas. At least 20 homes along the river were evacuated in June when flooding forced 30 to 40 people to find other shelter.

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<b>SARPY COUNTY --- 1.9 N AVERY [41.20, -95.93], 1.2 ENE AVERY [41.18, -95.91], 2.2 E GILMORE JCT [41.15, -95.89], 0.3 ESE LA PLATTE [41.07, -95.92], 1.4 ESE ST COLUMBANS [41.08, -95.85], 2.3 ENE BELLEVUE [41.14, -95.86], 4.6 ENE AVERY [41.18, -95.84]</b>				
	07/01/10 00:00 CST		15K	Flood (due to Heavy Rain)
	07/31/10 23:59 CST		0	Source: Official NWS Observations

This flooding carried over from June when heavy rain over much of eastern Nebraska and western Iowa during that month caused a prolonged period of flooding along the Missouri River, especially downstream of Omaha through Rulo. Although the river at Plattsmouth dropped below flood stage on July 8th, it remained high all of July climbing back above flood stage in the middle of the month and again several times late in the month into August. The flood damage was increased near the confluence of the Platte River early in July where high water from the Missouri caused the Platte River to back up even though the Platte had fallen below flood stage. High waters along the Platte flooded a park south of Bellevue forcing its closure. Other parks and a few roads were closed in Sarpy county along the Missouri River and houses that were between a levee and the river were also flooded or had access to them flooded. In Plattsmouth, just south of Sarpy county, the Missouri River crested a little over 33 feet in the late afternoon of June 22nd, flood stage is 26 feet. A July crest of around 29.5 feet was observed on the first.

**Heavy rain during the Month of June combined with continued high releases from upstream reservoirs caused prolonged flooding along the Missouri River that began in June and continued through July.**

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<b>DOUGLAS COUNTY --- 1.1 NNW ELKHORN [41.30, -96.24]</b>				
	07/07/10 14:00 CST		0	Funnel Cloud
	07/07/10 14:00 CST		0	Source: Broadcast Media

A developing thunderstorm produced a brief funnel cloud in west Omaha. The funnel was captured on film and shown by local media during the evening broadcast. No damage was observed or reported.

**Showers and thunderstorms that developed near a weak boundary produced several funnel cloud reports from east central Nebraska into western Iowa.**

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<b>(NE-Z033) CUMING, (NE-Z034) BURT, (NE-Z043) COLFAX, (NE-Z044) DODGE, (NE-Z045) WASHINGTON, (NE-Z050) BUTLER, (NE-Z051) SAUNDERS, (NE-Z052) DOUGLAS, (NE-Z053) SARPY, (NE-Z065) SEWARD, (NE-Z066) LANCASTER, (NE-Z067) CASS, (NE-Z068) OTOE, (NE-Z078) SALINE, (NE-Z088) JEFFERSON, (NE-Z089) GAGE, (NE-Z090) JOHNSON, (NE-Z091) NEMAHA, (NE-Z092) PAWNEE, (NE-Z093) RICHARDSON</b>				
	07/14/10 11:00 CST		0	Heat
	07/14/10 17:00 CST		0	

Temperatures climbed quickly into the lower to mid 90s early in the afternoon on July 14th as dew point temperatures rose to the upper 70s to lower 80s. This created heat index values of 105 to 115 degrees over most of the area from around noon CDT until 6pm CDT. A

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line of strong to severe thunderstorms developed on a cold front bringing relief to the heat by evening as they pushed through the region.				
<b>STANTON COUNTY --- 0.5 E STANTON [41.95, -97.22]</b>				
	07/14/10 15:56 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 15:56 CST		0	Source: Emergency Manager
Thunderstorm winds estimated at close to 60 mph downed large tree branches in Stanton.				
<b>CUMING COUNTY --- 4.0 NW WISNER [42.02, -96.99], WISNER [41.98, -96.93]</b>				
	07/14/10 16:15 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 16:18 CST		0	Source: Newspaper
Thunderstorm wind gusts estimated at close to 60 mph downed a few trees and large branches in and around Wisner which caused scattered vehicle and house damage in the area.				
<b>BURT COUNTY --- 0.9 NE LYONS [41.94, -96.47]</b>				
	07/14/10 16:58 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 16:58 CST		0	Source: Trained Spotter
A spotter estimated thunderstorm wind gusts of around 60 mph.				
<b>COLFAX COUNTY --- 3.6 NNW SCHUYLER [41.50, -97.09]</b>				
	07/14/10 16:58 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 16:58 CST		0	Source: Trained Spotter
Thunderstorm winds estimated at around 60 mph downed large branches northwest of Schuyler.				
<b>BURT COUNTY --- 0.7 N DECATUR [42.01, -96.25]</b>				
	07/14/10 17:02 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 17:02 CST		0	Source: Fire Department/Rescue
Thunderstorm winds of around 60 mph downed a few large branches in town.				
<b>BUTLER COUNTY --- 1.3 ESE LINWOOD [41.41, -96.93]</b>				
	07/14/10 17:15 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 17:19 CST		0	Source: Trained Spotter
A spotter estimated thunderstorm wind gusts around 60 mph which knocked down large branches and at least one healthy tree near Linwood.				
<b>SAUNDERS COUNTY --- 6.1 NW RESCUE [41.42, -96.95], 6.0 S MORSE BLUFF [41.34, -96.78]</b>				
	07/14/10 17:31 CST		0	Thunderstorm Wind (EG 60 kt)
	07/14/10 17:36 CST		0	Source: Trained Spotter
Thunderstorm winds estimated at over 65 mph knocked down some large trees from near Linwood to south of Morse Bluff.				
<b>SAUNDERS COUNTY --- 0.5 E MALMO [41.27, -96.72]</b>				
	07/14/10 17:44 CST		0	Thunderstorm Wind (EG 55 kt)
	07/14/10 17:44 CST		0	Source: Emergency Manager
Thunderstorm wind gusts estimated at over 60 mph uprooted trees in the Malmo area.				
<b>SAUNDERS COUNTY --- 3.3 SE CEDAR BLUFFS [41.37, -96.57]</b>				
	07/14/10 17:45 CST		0	Thunderstorm Wind (MG 53 kt)
	07/14/10 17:45 CST		0	Source: Mesonet
Local weather equipment measured a thunderstorm wind gust of 61 mph.				
<b>SAUNDERS COUNTY --- 4.8 NW LESHARA [41.37, -96.51]</b>				
	07/14/10 17:50 CST		0	Thunderstorm Wind (EG 53 kt)
	07/14/10 17:50 CST	1	0	Source: Newspaper

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A thunderstorm wind gust estimated at around 60 mph caused a semi to hit a guardrail and tip into the ditch slightly injuring the driver.				
<b>SAUNDERS COUNTY --- WAHOO [41.22, -96.62]</b>				
	07/14/10 17:54 CST		0	Thunderstorm Wind (EG 58 kt)
	07/14/10 17:54 CST		0	Source: Emergency Manager
Thunderstorm wind gusts estimated at around 65 mph downed trees and a few power lines in the Wahoo area.				
<b>DOUGLAS COUNTY --- 0.5 W VALLEY [41.32, -96.36], 0.8 SSE VALLEY [41.31, -96.34]</b>				
	07/14/10 18:00 CST		0	Thunderstorm Wind (MG 58 kt)
	07/14/10 18:05 CST		0	Source: Official NWS Observations
Thunderstorm wind gusts of up to 67 mph were measured at the NWS office near Valley. The winds snapped power poles along the road leading into the office. The winds also uprooted and split trees and large limbs causing scattered vehicle, house and fence damage in Valley.				
<b>DODGE COUNTY --- 2.9 SE FREMONT [41.42, -96.46]</b>				
	07/14/10 18:09 CST		0	Thunderstorm Wind (EG 61 kt)
	07/14/10 18:09 CST		0	Source: Law Enforcement
Law enforcement estimated thunderstorm wind gusts of around 70 mph along Highway 275 southeast of Fremont.				
<b>DOUGLAS COUNTY --- 1.8 NNW LANE [41.27, -96.19], 1.8 ENE GIBSON [41.26, -95.94]</b>				
	07/14/10 18:17 CST		0	Thunderstorm Wind (MG 52 kt)
	07/14/10 18:28 CST		0	Source: ASOS
The Asos at Omaha-Eppley measured a thunderstorm wind gust of 60 mph. There were estimates of winds a little stronger than this in west Omaha. The wind caused scattered tree and fence damage across town and knocked the power out to around 40,000 OPPD customers for at least several hours and some for more than a day.				
<b>DOUGLAS COUNTY --- 1.1 NW ELKHORN [41.29, -96.24], 0.5 W ELKHORN [41.28, -96.24]</b>				
	07/14/10 18:18 CST		0	Thunderstorm Wind (EG 55 kt)
	07/14/10 18:23 CST		0	Source: Trained Spotter
Thunderstorm wind gusts estimated at 60 to 65 mph downed large tree limbs in the 204th and Dodge and along Maple from 205th to 207th among other areas. Some of the fallen trees caused house and other damage. Fallen trees caused considerable damage to the Prospect Hill Cemetery in Elkhorn with at least 6 uprooted trees damaging at least 10 markers.				
<b>SARPY COUNTY --- GRETNA [41.15, -96.25]</b>				
	07/14/10 18:20 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 18:20 CST		0	Source: Newspaper
Thunderstorm wind gusts estimated at close to 60 mph caused scattered tree damage in the Gretna area including several large limbs that temporarily blocked traffic.				
<b>CASS COUNTY --- 0.9 SW GREENWOOD [40.96, -96.44]</b>				
	07/14/10 18:27 CST		0	Thunderstorm Wind (EG 55 kt)
	07/14/10 18:27 CST		0	Source: Trained Spotter
A spotter estimated thunderstorm wind gusts of 60 to 70 mph.				
<b>LANCASTER COUNTY --- 1.7 ESE WEST LINCOLN [40.82, -96.69], 1.4 SSW ARBOR [40.88, -96.68]</b>				
	07/14/10 18:40 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 18:40 CST		0	Source: Emergency Manager
Thunderstorm wind gusts estimated at around 60 mph destroyed or blew away several portable toilets, one of which blew threw a windshield of a car. The winds also knocked down several trees, some power lines and fences, mostly in northwest Lincoln. Around 450 LES customers lost power for a time.				
<b>LANCASTER COUNTY --- 0.9 SW WAVERLY [40.91, -96.53]</b>				
	07/14/10 18:46 CST		0	Thunderstorm Wind (EG 50 kt)
	07/14/10 18:46 CST		0	Source: Emergency Manager
Thunderstorm winds estimated at around 60 mph downed large tree branches in Waverly.				

## Storm Data and Unusual Weather Phenomena - July 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>CASS COUNTY --- 0.9 SE PLATTSMOUTH [41.01, -95.89]</b>				
	07/14/10 19:20 CST		0	Thunderstorm Wind (MG 54 kt)
	07/14/10 19:20 CST		0	Source: AWOS
A thunderstorm wind gust of 62 mph was measured by Awos at the Plattsmouth airport.				
<b>OTOE COUNTY --- 1.7 NW LORTON [40.59, -96.04]</b>				
	07/14/10 20:35 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 20:35 CST		0	Source: Trained Spotter
A spotter estimated thunderstorm wind gusts around 60 mph.				
<b>JOHNSON COUNTY --- 0.9 SE COOK [40.51, -96.16]</b>				
	07/14/10 20:45 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 20:45 CST		0	Source: Trained Spotter
Thunderstorm wind gusts estimated at around 60 mph downed a few large trees of 1 foot to 4 feet in diameter in the Cook area.				
<b>OTOE COUNTY --- 0.9 NE NEBRASKA CITY ARPT [40.68, -95.86]</b>				
	07/14/10 20:45 CST		0	Thunderstorm Wind (MG 55 kt)
	07/14/10 20:45 CST		0	Source: AWOS
The Awos at the Nebraska City airport measured a thunderstorm wind gust of 63 mph. The winds knocked down some branches and flipped a trampoline over onto a vehicle.				
<b>RICHARDSON COUNTY --- 0.7 N SHUBERT [40.24, -95.68]</b>				
	07/14/10 21:10 CST		0	Thunderstorm Wind (EG 52 kt)
	07/14/10 21:10 CST		0	Source: Trained Spotter
A spotter estimated thunderstorm wind gusts of around 60 mph.				
<b>OTOE COUNTY --- 1.4 NNE SYRACUSE [40.67, -96.17], 1.9 NNW SYRACUSE [40.67, -96.20], 1.3 SSW SYRACUSE [40.63, -96.19], 1.3 SSE SYRACUSE [40.63, -96.17]</b>				
	07/14/10 21:11 CST		5K	Flash Flood (due to Heavy Rain)
	07/14/10 23:11 CST		0	Source: Public
Rainfall of 1.5 to 2.5 inches in less than an hour caused flash flooding of a few streets and the city park in Syracuse. Water also crossed Highway 50 south of town and created a washout near the highway and railroad tracks.				
<b>RICHARDSON COUNTY --- FALLS CITY [40.07, -95.60]</b>				
	07/14/10 21:18 CST		0	Thunderstorm Wind (MG 51 kt)
	07/14/10 21:18 CST		0	Source: ASOS
The Asos at the Falls City airport measured a thunderstorm wind gust of 59 mph.				
<b>Thunderstorms developed in a southwest to northeast line along a cold front that pushed across eastern Nebraska and western Iowa during the late afternoon and evening of July 14th. Ahead of the front temperatures climbed into the mid 90s with dew point temperatures in the mid 70s to around 80. This created a very unstable environment for the storms. As the storms encountered the extremely unstable conditions they increased in strength, and besides producing very heavy rain, wet micro-bursts developed with some of the storms.</b>				

Storm Data and Unusual Weather Phenomena - July 2010


Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
				

Photo oa large tree that fell in Elkhorn, NE. Photo by Dan Nietfeld.

PLATTE COUNTY --- 2.0 N HUMPHREY [41.71, -97.50]				
	07/16/10 17:20 CST	0		Funnel Cloud
	07/16/10 17:20 CST	0		Source: Law Enforcement

A funnel cloud was seen by many people from the Norfolk area to the north to Humphrey near it and Clarkson to the east . Several photographs from different angles were taken and sent to the NWS office . No damage was observed.

At least one funnel cloud developed along a very weak front north of Columbus. The funnel apparently did not touch down but was seen by many people as far away as the Norfolk area.



## Storm Data and Unusual Weather Phenomena - July 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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*Funnel cloud photo taken from near Humphrey, NE in Platte County. Photo by Don Zavadil.*

(NE-Z015) THURSTON, (NE-Z018) WAYNE, (NE-Z033) CUMING, (NE-Z034) BURT, (NE-Z042) PLATTE, (NE-Z043) COLFAX, (NE-Z044) DODGE, (NE-Z045) WASHINGTON, (NE-Z050) BUTLER, (NE-Z051) SAUNDERS, (NE-Z052) DOUGLAS, (NE-Z053) SARPY, (NE-Z065) SEWARD, (NE-Z066) LANCASTER, (NE-Z067) CASS, (NE-Z068) OTOE, (NE-Z078) SALINE, (NE-Z088) JEFFERSON, (NE-Z089) GAGE, (NE-Z090) JOHNSON, (NE-Z091) NEMAHA, (NE-Z092) PAWNEE, (NE-Z093) RICHARDSON

07/17/10 12:00 CST	0	Heat
07/17/10 18:00 CST	0	

Sunshine and warm temperatures aloft helped temperatures climb into the lower to mid 90s and south winds helped dew point temperatures reach 75 to 80 degrees over most of the region. This allowed heat index values to climb into the 105 to 110 degree range over much of the area from around 1pm to 7pm CDT on July 17th.

**SEWARD COUNTY --- 2.1 N GROVER [40.81, -97.03]**

07/17/10 23:31 CST	0	Hail (1.00 in)
07/17/10 23:31 CST	0	Source: Storm Chaser

**LANCASTER COUNTY --- 1.7 ESE WEST LINCOLN [40.82, -96.69], 2.4 WNW CHENEYS [40.74, -96.64]**

07/17/10 23:42 CST	0	Thunderstorm Wind (EG 56 kt)
07/17/10 23:45 CST	0	Source: Storm Chaser

Thunderstorm wind gusts estimated as high as 60 to 65 mph pushed through the Lincoln area causing scattered tree damage and power outages. At least 35 calls were made to remove trees or large limbs from streets or vehicles. The winds at the Lincoln airport were measured at 57 mph by Asos, but according to the Lincoln Journal, the south part of Lincoln was the hardest hit so winds were probably stronger there. Around 4000 LES customers lost power from the storm.

**OTOE COUNTY --- NEBRASKA CITY [40.65, -95.85]**

## Storm Data and Unusual Weather Phenomena - July 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	07/18/10 00:45 CST		0	Thunderstorm Wind (EG 50 kt)
	07/18/10 00:45 CST		0	Source: Newspaper

Thunderstorm wind gusts estimated at close to 60 mph downed at least one tree along with many branches in the Nebraska City area.

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### OTOE COUNTY --- 3.0 ESE PAUL [40.55, -95.83]

07/18/10 00:54 CST	0	Hail (1.75 in)
07/18/10 00:54 CST	0	Source: Trained Spotter

Isolated thunderstorms developed along a slow moving weak cold front that pushed into eastern Nebraska during the overnight hours of July 17th/18th. Ahead of the front conditions were moderately unstable with temperatures in the 80s and dew point temperatures in the mid to upper 70s. Two small clusters of thunderstorms crossed the area, one tracked from the Albion and Norfolk area into western Iowa north of Omaha. The other from Seward and Lincoln toward Nebraska City. The storms mainly produced gusty winds, but a few reports of large hail were also received.

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### DOUGLAS COUNTY --- 0.5 E BENNINGTON [41.37, -96.16]

07/20/10 00:16 CST	0	Hail (0.88 in)
07/20/10 00:16 CST	0	Source: Public

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### DOUGLAS COUNTY --- 0.9 SW OMAHA [41.26, -96.01]

07/20/10 00:18 CST	0	Thunderstorm Wind (MG 54 kt)
07/20/10 00:18 CST	0	Source: ASOS

The Asos at Omaha-Eppley airport measured a thunderstorm wind gust of 62 mph. The winds caused scattered tree damage in Omaha.

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### LANCASTER COUNTY --- 2.2 ENE WAVERLY [40.93, -96.48]

07/20/10 01:09 CST	0	Thunderstorm Wind (MG 50 kt)
07/20/10 01:09 CST	0	Source: Trained Spotter

A weather spotter measured a thunderstorm wind gust of 58 mph on home weather equipment.

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### LANCASTER COUNTY --- 0.9 NW RAYMOND [40.96, -96.78]

07/20/10 01:18 CST	0	Thunderstorm Wind (EG 52 kt)
07/20/10 01:18 CST	0	Source: Trained Spotter

A spotter estimated thunderstorm winds gusted to around 60 mph in the Raymond area.

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### CASS COUNTY --- 0.5 W ALVO [40.87, -96.39]

07/20/10 01:30 CST	0	Thunderstorm Wind (EG 52 kt)
07/20/10 01:30 CST	0	Source: Trained Spotter

A spotter estimated thunderstorm wind gusts reached 60 mph.

An east-west line of thunderstorms developed from central Nebraska east into western Iowa during the early morning hours of July 20th. The storms developed north of a nearly stationary front that was along the Kansas and Nebraska border. The storms produced locally heavy rain and also isolated severe weather reports, mainly strong wind gusts.

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### KNOX COUNTY --- 7.0 S VERDEL [42.72, -98.20], 10.5 WNW VERDIGRE [42.66, -98.22], 7.5 W VERDIGRE [42.60, -98.18], 6.5 SW NIOBRARA [42.68, -98.12]

07/22/10 01:00 CST	20K	Flash Flood (due to Heavy Rain)
07/22/10 04:30 CST	0	Source: COOP Observer

Rainfall of 5 to 6 inches fell south of Verdel causing flash flooding along small creeks in the area. According to the cooperative observer south of Verdel the flooding washed out 6 to 7 small earth dams as water around a quarter mile wide flooded out trees, fences and other objects in its path in the area.

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### KNOX COUNTY --- 4.0 E VERDEL [42.81, -98.12], 3.8 NW NIOBRARA [42.79, -98.08], 1.8 SW VERDEL [42.80, -98.23], 5.6 W VERDEL [42.82, -98.31], 5.0 WNW VERDEL [42.84, -98.30]

07/22/10 03:30 CST	15K	Flash Flood (due to Heavy Rain)
07/22/10 04:30 CST	0	Source: Official NWS Observations

Rainfall of 4 to 6 inches fell in about a 4 to 6 hour period along the Ponca Creek basin. The heavy rain caused a rapid rise of Ponca Creek which flooded areas along the creek east and west of Verdel. Some county roads and Highway 12 near the creek were flooded along with agricultural lowlands. Several washouts of county roads occurred.

## Storm Data and Unusual Weather Phenomena - July 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>KNOX COUNTY --- 6.2 WSW VERDEL [42.78, -98.31], 4.1 SW NIOBRARA [42.71, -98.08], 2.1 NW NIOBRARA [42.77, -98.06], 0.6 N NIOBRARA [42.76, -98.03], 5.1 S NIOBRARA [42.68, -98.05], 7.3 SW NIOBRARA [42.69, -98.15]</b>				
	07/22/10 04:00 CST		15K	Flood (due to Heavy Rain)
	07/23/10 05:15 CST		0	Source: Law Enforcement
Rainfall of at least 4 to 8 inches fell across the lower Niobrara River basin late in the evening of the 21st into the early morning hours of the 22nd. This caused the Niobrara River to flood across the Jct of Highways 12 and 14 near Niobrara swamping at least one vehicle. A few other roads in the area also flooded. At its peak almost 20,000 cfs of water was flowing down the Niobrara, compared to normal flows of 1,000 cfs. According to NPPD records, spillway gates from an upstream reservoir were opened for the first time since 1966 to relieve water pressure against the dam. The high water also flooded a local golf course and surrounding agricultural land.				
<b>KNOX COUNTY --- 2.2 WSW NIOBRARA [42.74, -98.07], 4.2 WSW VERDEL [42.80, -98.28], 6.1 W VERDEL [42.82, -98.32], 5.4 WNW VERDEL [42.84, -98.30], 2.8 ENE VERDEL [42.83, -98.15], 3.4 NW NIOBRARA [42.78, -98.08]</b>				
	07/22/10 04:30 CST		35K	Flood (due to Heavy Rain)
	07/22/10 22:00 CST		0	Source: Law Enforcement
Rainfall of at least 4 to 8 inches fell across the Ponca Creek basin from late in the evening of the 21st into the early morning hours of the 22nd. The heavy rain caused flooding along Ponca Creek for much of July 22nd. The creek near Verdel crested a little over 14.5 feet during the early afternoon hours of the 22nd, flood stage is 12 feet. The flooding caused numerous washouts of county roads and also flooded Highway 12 along with agricultural lowlands. Several culverts needed replacement after the flood. There was also significant flooding of a resort near the Missouri River close to where Ponca Creek flows into it with over 2 feet of water reported in the campground.				
<b>KNOX COUNTY --- 7.0 S VERDEL [42.72, -98.22]</b>				
	07/22/10 07:15 CST		0	Heavy Rain
	07/22/10 07:15 CST		0	Source: COOP Observer
Twenty-four hour rainfall of a little over 6 inches was measured by the cooperative observer south of Verdel, although most fell in about a 4 to 6 hour period.				
<b>PIERCE COUNTY --- 1.6 ESE OSMOND [42.37, -97.55], 1.1 ESE OSMOND [42.37, -97.56], 1.1 ESE OSMOND [42.37, -97.56], 1.5 E OSMOND [42.37, -97.55]</b>				
	07/22/10 09:00 CST		0	Flood (due to Heavy Rain)
	07/22/10 11:00 CST		0	Source: Emergency Manager
Rainfall of 3 to 4 inches fell near and north of the Osmond area during the overnight hours of July 21 and 22nd. This caused some minor flooding across Highway 20 a few miles east of Osmond with about 4 inches of water reported across the highway for a while during the morning of the 22nd. Little or no damage was reported.				
<b>KNOX COUNTY --- 4.1 E NIOBRARA [42.75, -97.95], 4.0 ENE NIOBRARA [42.76, -97.95], 4.9 E NIOBRARA [42.76, -97.93], 5.3 E NIOBRARA [42.75, -97.93]</b>				
	07/22/10 10:05 CST		10K	Flood (due to Heavy Rain)
	07/22/10 14:05 CST		0	Source: Law Enforcement
Rainfall of 4 to 6 inches fell across much of this area during the night of July 21st and 22nd. The heavy rain produced flooding along Bazile Creek which flooded across Highway 12 east of Niobrara depositing some debris and causing its temporary closure. A Few county roads in the area were also flooded as were agricultural lowlands near the Creek.				
<b>A line of thunderstorms developed in extreme northeast Nebraska in response to an increasing low level jet feeding in very moist and unstable conditions into a weak nearly stationary front in the region. The thunderstorms tracked repeatedly across the same region producing locally very heavy rain and some flash flooding.</b>				
<b>(NE-Z053) SARPY, (NE-Z067) CASS</b>				
	07/22/10 14:00 CST		0	Heat
	07/22/10 18:00 CST		0	
Afternoon temperatures reached the mid 90s and dew point values approached 80 degrees across a few counties along the Missouri River just south of Omaha. This allowed heat index values to climb to around 105 degrees for several hours.				